CLAIMS

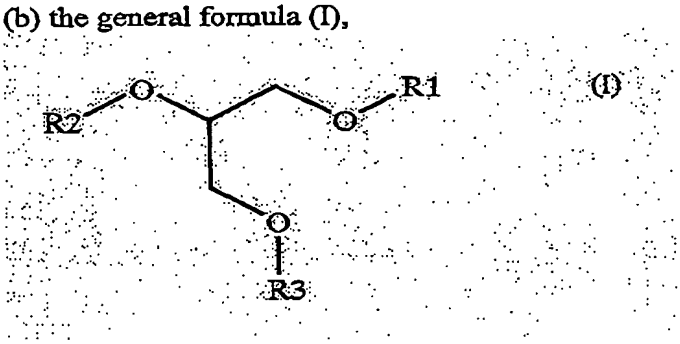
1. Use of a preparation comprising a combination of:

1) a protein material; and

2) one or more compounds comprising a non β-oxidizable fatty acid entity represented by

(a) the general formula R''-COO-$(CH_2)_{2n+1}$-X-R', wherein X is a sulphur atom, a selenium atom, an oxygen atom, a CH_2 group, a SO group or a SO_2 group; n is an integer of 0 to 11; and R' is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, wherein the main chain of said R' contains from 13 to 23 carbon atoms and optionally one or more heterogroups selected from the group comprising an oxygen atom, a sulphur atom, a selenium atom, an oxygen atom, a CH_2 group, a SO group and a SO_2 group; and R'' is a hydrogen atom or an alkyl group containing from 1 to 4 carbon atoms; and/or

(b) the general formula (I),



(I)

wherein R1, R2, and R3 represent

i) a hydrogen atom; or

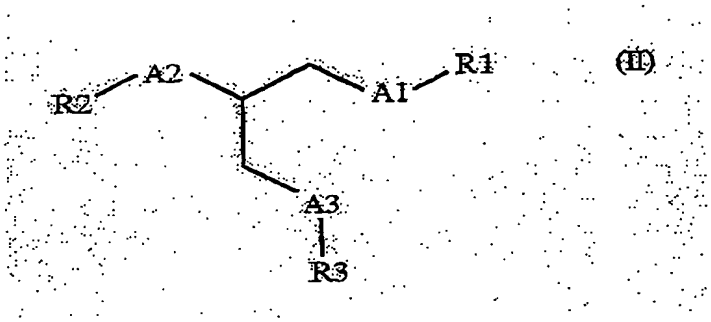
ii) a group having the formula CO-R in which R is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, and the main chain of said R contains from 1 to 25 carbon atoms; or

iii) a group having the formula CO-$(CH_2)_{2n+1}$-X-R', wherein X is a sulphur atom, a selenium atom, an oxygen atom, a CH_2 group, a SO group or a SO_2 group; n is an integer of 0 to 11; and R' is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, wherein the main chain of said R' contains from 13 to 23 carbon atoms and optionally one or more heterogroups selected from the group comprising an oxygen atom, a sulphur atom, a selenium atom, an oxygen atom, a CH_2 group, a SO group and a SO_2 group;

iv) an entity selected from the group comprising -$PO_3CH_2CHNH_3COOH$ (serine), $PO_3CH_2CH_2NH_3$ (ethanolamine), $PO_3CH_2CH_2N(CH_3)_3$ (choline), $PO_3CH_2CHOHCH_2OH$ (glycerol) and $PO_3(CHOH)_6$ (inositol);

wherein R1, R2, and R3 are chosen independently from i), ii), iii), or iv), but at least one of R1, R2, or R3 is defined by iii); and/or

(c) the general formula (II),



wherein A1, A2 and A3 are chosen independently and represent an oxygen atom, a sulphur atom or an N-R4 group in which R4 is a hydrogen atom or a linear or branched alkyl group, saturated or unsaturated, optionally substituted, containing from 1 to 5 carbon atoms;

wherein R1, R2, and R3 represent

i) a hydrogen atom or a linear or branched alkyl group, saturated or unsaturated, optionally substituted, containing from 1 to 23 carbon atoms; or

ii) a group having the formula CO-R in which R is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, and the main chain of said R contains from 1 to 25 carbon atoms; or

iii) a group having the formula $CO-(CH_2)_{2n+1}-X-R'$, wherein X is a sulphur atom, a selenium atom, an oxygen atom, a CH_2 group, a SO group or a SO_2 group; n is an integer of 0 to 11; and R' is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, wherein the main chain of said R' contains from 13 to 23 carbon atoms and optionally one or more heterogroups selected from the group comprising an oxygen atom, a sulphur atom, a selenium atom, an oxygen atom, a CH_2 group, a SO group and a SO_2 group;

iv) an entity selected from the group comprising -$PO_3CH_2CHNH_3COOH$ (serine), $PO_3CH_2CH_2NH_3$ (ethanolamine), $PO_3CH_2CH_2N(CH_3)_3$ (choline), $PO_3CH_2CHOHCH_2OH$ (glycerol) and $PO_3(CHOH)_6$ (inositol);

wherein R1, R2, and R3 are chosen independently from i), ii), iii), or iv), but at least one of R1, R2, or R3 is defined by iii); and/or

a salt, prodrug or complex of the compounds according to (a)-(c) for the preparation of a pharmaceutical or nutritional composition for the prevention and/or treatment of insulin resistance, obesity, diabetes, fatty liver, hypercholesterolemia, dyslipidemia, atherosclerosis, coronary heart disease, thrombosis, stenosis, secondary stenosis, myocardial infarction, stroke, elevated blood pressure, endothelial dysfunction, procoagulant state, polycystic ovary syndrome, the metabolic syndrome, cancer, an inflammatory disorder, and a proliferate skin disorder.

2. Use according to claim 1, where said prevention and/or treatment of cancer includes inhibition of: primary and secondary neoplasms, the growth of tumours, invasion of a primary tumour into connective tissue and formation of secondary tumours.

3. Use according to claim 1, where the inflammatory disorder is selected from the group comprising immune mediated disorders such as rheumatoid arthritis, systemic vasculitis, systemic lupus erythematosus, systemic sclerosis, dermatomyositis, polymyositis, various autoimmune endocrine disorders (e.g. thyroiditis and adrenalitis), various immune mediated neurological disorders (e.g. multiple sclerosis and myastenia gravis), various cardiovascular disorders (e.g. myocarditis, congestive heart failure, arteriosclerosis and stable and unstable angina, and Wegener's granulomatosis), inflammatory bowel diseases and Chron's disease, non specific colitis, pancreatitis, nephritis, cholestatis/fibrosis of the liver, and acute and chronic allograft rejection after organ transplantation, and diseases that have an inflammatory component such as e.g. Alzheimer's disease or impaired/improvable cognitive function.

4. Use according to claim 1, where said proliferate skin disorder is selected from the group comprising psoriasis, atopic dermatitis, non-specific dermatitis, primary irritant contact-dermatitis, allergic contact-dermatitis, lamellar ichthyosis, epidermolytic hyperkeratoses, pre-malign sun-induced keratoses, and seborrhoea.

5. Use of an animal feed comprising common feed components and a combination of:

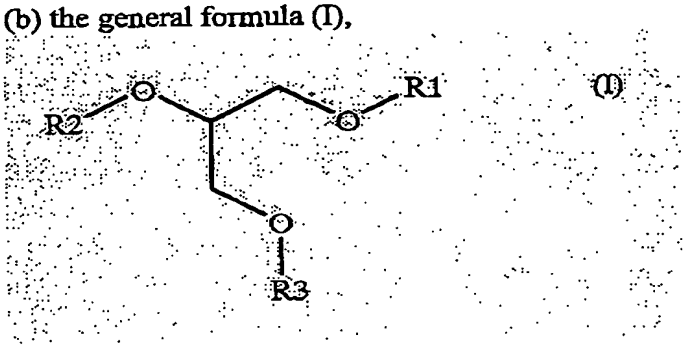
1) a protein material; and

2) one or more compounds comprising non β-oxidizable fatty acid entities represented by

(a) the general formula R''-COO-$(CH_2)_{2n+1}$-X-R', wherein X is a sulphur atom, a selenium atom, an oxygen atom, a CH_2 group, a SO group or a SO_2 group; n is an integer of 0 to 11; and R' is a linear or branched alkyl group, saturated or unsaturated,

optionally substituted, wherein the main chain of said R' contains from 13 to 23 carbon atoms and optionally one or more heterogroups selected from the group comprising an oxygen atom, a sulphur atom, a selenium atom, an oxygen atom, a CH_2 group, a SO group and a SO_2 group; and R'' is a hydrogen atom or an alkyl group containing from 1 to 4 carbon atoms; and/or

(b) the general formula (I),



(I)

wherein R1, R2, and R3 represent

i) a hydrogen atom; or

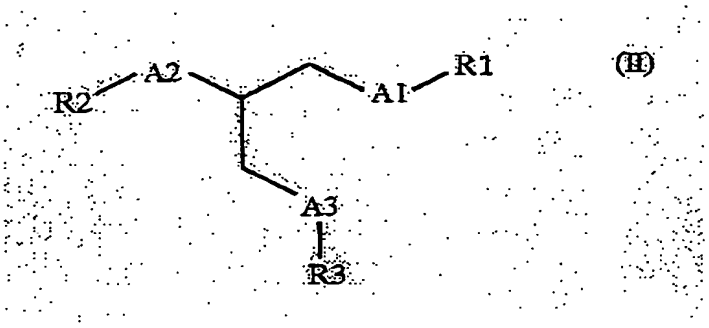
ii) a group having the formula CO-R in which R is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, and the main chain of said R contains from 1 to 25 carbon atoms; or

iii) a group having the formula $CO\text{-}(CH_2)_{2n+1}\text{-}X\text{-}R'$, wherein X is a sulphur atom, a selenium atom, an oxygen atom, a CH_2 group, a SO group or a SO_2 group; n is an integer of 0 to 11; and R' is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, wherein the main chain of said R' contains from 13 to 23 carbon atoms and optionally one or more heterogroups selected from the group comprising an oxygen atom, a sulphur atom, a selenium atom, an oxygen atom, a CH_2 group, a SO group and a SO_2 group;

iv) an entity selected from the group comprising $-PO_3CH_2CHNH_3COOH$ (serine), $PO_3CH_2CH_2NH_3$ (ethanolamine), $PO_3CH_2CH_2N(CH_3)_3$ (choline), $PO_3CH_2CHOHCH_2OH$ (glycerol) and $PO_3(CHOH)_6$ (inositol);

wherein R1, R2, and R3 are chosen independently from i), ii), iii), or iv), but at least one of R1, R2, or R3 is defined by iii); and/or

(c) the general formula (II),



(II)

wherein A1, A2 and A3 are chosen independently and represent an oxygen atom, a sulphur atom or an N-R4 group in which R4 is a hydrogen atom or a linear or branched alkyl group, saturated or unsaturated, optionally substituted, containing from 1 to 5 carbon atoms;

wherein R1, R2, and R3 represent

i) a hydrogen atom or a linear or branched alkyl group, saturated or unsaturated, optionally substituted, containing from 1 to 23 carbon atoms; or

ii) a group having the formula CO-R in which R is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, and the main chain of said R contains from 1 to 25 carbon atoms; or

iii) a group having the formula CO-$(CH_2)_{2n+1}$-X-R', wherein X is a sulphur atom, a selenium atom, an oxygen atom, a CH_2 group, a SO group or a SO_2 group; n is an integer of 0 to 11; and R' is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, wherein the main chain of said R' contains from 13 to 23 carbon atoms and optionally one or more heterogroups selected from the group comprising an oxygen atom, a sulphur atom, a selenium atom, an oxygen atom, a CH_2 group, a SO group and a SO_2 group;

iv) an entity selected from the group comprising -$PO_3CH_2CHNH_3COOH$ (serine), $PO_3CH_2CH_2NH_3$ (ethanolamine), $PO_3CH_2CH_2N(CH_3)_3$ (choline), $PO_3CH_2CHOHCH_2OH$ (glycerol) and $PO_3(CHOH)_6$ (inositol);

wherein R1, R2, and R3 are chosen independently from i), ii), iii), or iv), but at least one of R1, R2, or R3 is defined by iii); and/or

a salt, prodrug or complex of the compounds according to (a)-(c) for improving the total body lipid composition of an animal.

6. Use according to claim 5, where the improvement of the total lipid composition comprises decreasing the total body lipid levels.

7. Use according to claim 5, where the improvement of the total lipid composition comprises decreasing the total body saturated fatty acid levels.

8. Use according to claim 5, where the improvement of the total lipid composition comprises increasing the total body n-3 fatty acid levels.

9. Use according to any of the claims 1-8, wherein said protein material is fermented.

10. Use according to any of the claims 1-8, wherein said protein material is a single cell protein material (SCP).

11. Use according to any of the claims 1-8, wherein said protein material is a fish protein hydrolysate.

12. Use according to any of claims 1 - 8, where said protein material is soy protein.

13. Use according to claim 12, wherein said protein material is a fermented soy protein material.

14. Use according to claim 13, wherein said soy protein material is Gendaxin®.

15. Use according to any of claims 1-14, where the compound(s) comprising a non β-oxidizable fatty acid entity are non β-oxidizable fatty acids.

16. Use according to claim 15, where the compound(s) comprising a non β-oxidizable fatty acid entity are tetradecylthioacetic acid (TTA), tetradecylselenoacetic acid and/or 3-Thia-15-heptadecyne.

17. Use according to any of claims 1-14, where X is a sulphur atom or a selenium atom.

18. Use according to any of claims 1-14, where the compound(s) comprising a non β-oxidizable fatty acid entity is a phospholipid, wherein said phospholipid is selected from the group comprising phosphatidyl serine, phosphatidyl choline, phosphatidyl ethanolamine, phosphatidyl inositol, phosphatidyl glycerol, and/or diphosphatidyl glycerol.

19. Use according to any of claims 1-14, where the compound comprising a non β-oxidizable fatty acid entity is the phosphatidyl choline derivative 1,2-ditetradecylthioacetoyl-*sn*-glycero-3-phosphocholine.

20. Use according to any of claims 1-14, where the compound comprising a non β-oxidizable fatty acid entity is the phosphatidyl ethanolamine derivative 1,2-ditetradecylthioacetoyl-*sn*-glycero-3-phosphoethanolamine.

21. Use according to any of claims 1-14, where the compound(s) comprising a non β-oxidizable fatty acid entity are mono-, di- or tri-acylglycerides.

22. Use according to claim 21, where the compound(s) comprising a non β-oxidizable fatty acid entity are tri-acylglycerides comprising tetradecylthioacetic acid (TTA).

23. Use according to any of the claims 1-22, wherein the composition further comprises a plant and/or fish oil.

24. Use of a preparation comprising a combination of:
1) a protein material, and
2) a plant or fish oil,
wherein the protein material is chosen from the group comprising single cell protein material (SCP), fish protein hydrolysate, or a fermented soy protein material, preferably Gendaxin®, for the preparation of a pharmaceutical or nutritional composition for the prevention and/or treatment of hypercholesterolemia and conditions negatively effected by high cholesterol levels, insulin resistance, obesity, diabetes, fatty liver, dyslipidemia, atherosclerosis, coronary heart disease, thrombosis, stenosis, secondary stenosis, myocardial infarction, stroke, elevated blood pressure, endothelial dysfunction, procoagulant state, polycystic ovary syndrome, the metabolic syndrome, cancer, inflammatory disorders and proliferate skin disorders.

25. Use according to claim 23 or 24, where the plant or fish oil comprise polyunsaturated fatty acids.

26. Use according to claim 25, where the plant oil is selected from the group comprising sunflower oil, soy oil and olive oil.

27. Use according to claim 24, where said prevention and/or treatment of cancer includes inhibition of: primary and secondary neoplasms, the growth of tumours, invasion of a primary tumour into connective tissue and formation of secondary tumours.

28. Use according to claim 24, where the inflammatory disorder is selected from the group comprising immune mediated disorders such as rheumatoid arthritis, systemic vasculitis, systemic lupus erythematosus, systemic sclerosis, dermatomyositis, polymyositis, various autoimmune endocrine disorders (e.g. thyroiditis and adrenalitis), various immune mediated neurological disorders (e.g. multiple sclerosis and myastenia gravis), various cardiovascular disorders (e.g. myocarditis, congestive heart failure, arteriosclerosis and stable and unstable angina, and Wegener's granulomatosis), inflammatory bowel diseases and Chron's disease, non specific colitis, pancreatitis, nephritis, cholestatis/fibrosis of the liver, and acute and chronic allograft rejection after organ transplantation, and diseases that have an inflammatory component such as e.g. Alzheimer's disease or impaired/improvable cognitive function.

29. Use according to claim 24, where said proliferate skin disorder is selected from the group comprising psoriasis, atopic dermatitis, non-specific dermatitis, primary irritant contact-dermatitis, allergic contact-dermatitis, lamellar ichthyosis, epidermolytic hyperkeratoses, pre-malign sun-induced keratoses, and seborrhoea.

30. Use according to any of the preceding claims, wherein said composition is administered or fed to an animal.

31. Use according to claim 30, wherein said animal is a human.

32. Use according to claim 30, wherein said animal is an agricultural animal, such as gallinaceous birds, bovine, ovine, caprine or porcine mammals.

33. Use according to claim 30, wherein said animal is a domestic or pet animal, such as dog or cat.

34. Use according to claim 30, wherein said animal is a fish or shellfish, such as salmon, cod, Tilapia, clams, oysters, lobster or crabs.

35. Use according to any of the previous claims, where the compounds comprising non β-oxidizable fatty acid entities comprise a daily dosage of about 1 – 200 mg/kg,

preferably 5 - 50 mg/kg for human consumption, and about 1 – 2000 mg/kg, preferably 5 - 500 mg/kg, for animal consumption.

36. Use according to any of the previous claims, where the protein material comprise a daily dosage of about 5 – 500 mg/kg, preferably 50 - 300 mg/kg for human consumption, and from 5 mg/kg up to the total daily protein consumption for animal consumption.

37. Use according to claim 23 or 24 where the oil comprise a daily dosage of about 1 – 300 mg/kg, preferably 10 - 150 mg/kg for human consumption, and from 1 mg/kg up to the total daily fat consumption for animal consumption.

38. Use according to claim 5, where the animal feed may be a nutritional composition, veterinary composition, and/or a functional food product.

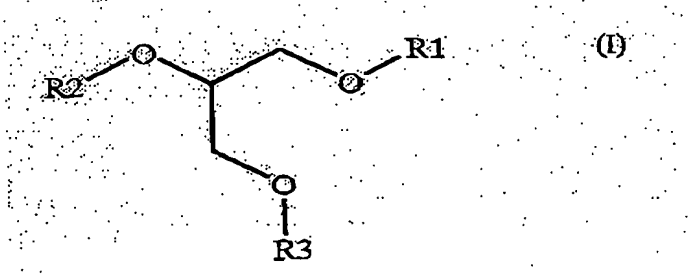
39. A composition, characterized in that said composition comprises a combination of:

1) a protein material; and

2) one or more compounds comprising non β-oxidizable fatty acid entities represented by

(a) the general formula R''-COO-$(CH_2)_{2n+1}$-X-R', wherein X is a sulphur atom, a selenium atom, an oxygen atom, a CH_2 group, a SO group or a SO_2 group; n is an integer of 0 to 11; and R' is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, wherein the main chain of said R' contains from 13 to 23 carbon atoms and optionally one or more heterogroups selected from the group comprising an oxygen atom, a sulphur atom, a selenium atom, an oxygen atom, a CH_2 group, a SO group and a SO_2 group; and R'' is a hydrogen atom or an alkyl group containing from 1 to 4 carbon atoms; and/or

(b) the general formula (I),



(I)

wherein R1, R2, and R3 represent

i) a hydrogen atom; or

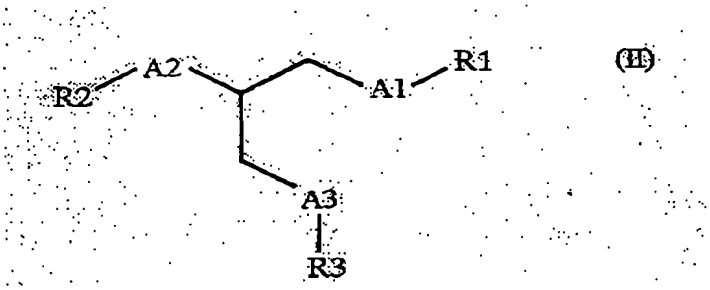
ii) a group having the formula CO-R in which R is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, and the main chain of said R contains from 1 to 25 carbon atoms; or

iii) a group having the formula $CO-(CH_2)_{2n+1}-X-R'$, wherein X is a sulphur atom, a selenium atom, an oxygen atom, a CH_2 group, a SO group or a SO_2 group; n is an integer of 0 to 11; and R' is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, wherein the main chain of said R' contains from 13 to 23 carbon atoms and optionally one or more heterogroups selected from the group comprising an oxygen atom, a sulphur atom, a selenium atom, an oxygen atom, a CH_2 group, a SO group and a SO_2 group;

iv) an entity selected from the group comprising $-PO_3CH_2CHNH_3COOH$ (serine), $PO_3CH_2CH_2NH_3$ (ethanolamine), $PO_3CH_2CH_2N(CH_3)_3$ (choline), $PO_3CH_2CHOHCH_2OH$ (glycerol) and $PO_3(CHOH)_6$ (inositol);

wherein R1, R2, and R3 are chosen independently from i), ii), iii), or iv), but at least one of R1, R2, or R3 is defined by iii); and/or

(c) the general formula (II),



(II)

wherein A1, A2 and A3 are chosen independently and represent an oxygen atom, a sulphur atom or an N-R4 group in which R4 is a hydrogen atom or a linear or branched alkyl group, saturated or unsaturated, optionally substituted, containing from 1 to 5 carbon atoms;

wherein R1, R2, and R3 represent

i) a hydrogen atom or a linear or branched alkyl group, saturated or unsaturated, optionally substituted, containing from 1 to 23 carbon atoms; or

ii) a group having the formula CO-R in which R is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, and the main chain of said R contains from 1 to 25 carbon atoms; or

iii) a group having the formula $CO-(CH_2)_{2n+1}-X-R'$, wherein X is a sulphur atom, a selenium atom, an oxygen atom, a CH_2 group, a SO group or a SO_2 group; n is an integer of 0 to 11; and R' is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, wherein the main chain of said R' contains from 13 to 23 carbon atoms and optionally one or more heterogroups selected from the group comprising an oxygen atom, a sulphur atom, a selenium atom, an oxygen atom, a CH_2 group, a SO group and a SO_2 group;

iv) an entity selected from the group comprising $-PO_3CH_2CHNH_3COOH$ (serine), $PO_3CH_2CH_2NH_3$ (ethanolamine), $PO_3CH_2CH_2N(CH_3)_3$ (choline), $PO_3CH_2CHOHCH_2OH$ (glycerol) and $PO_3(CHOH)_6$ (inositol);

wherein R1, R2, and R3 are chosen independently from i), ii), iii), or iv), but at least one of R1, R2, or R3 is defined by iii); and/or

a salt, prodrug or complex of the compounds according to (a)-(c)

40. Composition according to claim 39, wherein said protein material is fermented.

41. Composition according to claim 39, wherein said protein material is a single cell protein material (SCP).

42. Composition according to claim 39, wherein said protein material is a fish protein hydrolysate.

43. Composition according to claim 39, where said protein material is soy protein.

44. Composition according to claim 43, wherein said protein material is a fermented soy protein material.

45. Composition according to claim 44, wherein said soy protein material is Gendaxin®.

46. Composition according to claim 39, where the composition comprise a daily dosage of a compound comprising a non β-oxidizable fatty acid analogue of about 1 – 200 mg/kg, preferably 5 - 50 mg/kg, for human consumption, and about 1 – 2000 mg/kg, preferably 5 - 500 mg/kg, for animal consumption.

47. Composition according to claim 39, wherein the composition further comprises a plant and/or fish oil.

48. Composition according to claim 39, where the compound(s) comprising a non β-oxidizable fatty acid entity are non β-oxidizable fatty acids.

49. Composition according to claim 48, where the compound(s) comprising a non β-oxidizable fatty acid entity are tetradecylthioacetic acid (TTA), tetradecylselenoacetic acid and/or 3-Thia-15-heptadecyne.

50. Composition according to claim 39, where X is a sulphur atom or a selenium atom.

51. Composition according to claim 39, where the compound(s) comprising a non β-oxidizable fatty acid entity is a phospholipid, wherein said phospholipid is selected from the group comprising phosphatidyl serine, phosphatidyl choline, phosphatidyl ethanolamine, phosphatidyl inositol, phosphatidyl glycerol, and/or diphosphatidyl glycerol.

52. Composition according to claim 39, where the compound comprising a non β-oxidizable fatty acid entity is the phosphatidyl choline derivative 1,2-ditetradecylthioacetoyl-*sn*-glycero-3-phosphocholine.

53. Composition according to claim 39, where the compound comprising a non β-oxidizable fatty acid entity is the phosphatidyl ethanolamine derivative 1,2-ditetradecylthioacetoyl-*sn*-glycero-3-phosphoethanolamine.

54. Composition according to claim 39, where the compound(s) comprising a non β-oxidizable fatty acid entity are mono-, di- or tri-acylglycerides.

55. Composition according to claim 54, where the compound(s) comprising a non β-oxidizable fatty acid entity are tri-acylglycerides comprising tetradecylthioacetic acid (TTA).

56. A composition comprising a combination of:
1) a protein material, and
2) a plant or fish oil,
wherein the protein material is chosen from the group comprising single cell protein material (SCP), fish protein hydrolysate, or a fermented soy protein material, preferably Gendaxin®.

57. Composition according to claim 39 or 56, where the plant or fish oil comprise polyunsaturated fatty acids.

58. Composition according to claim 56, where the plant oil is selected from the group comprising sunflower oil, soy oil and olive oil.

59. Composition according to claim 39 or 56, where the composition comprises a daily dosage of protein material of about 5 – 500 mg/kg, preferably 50 - 300 mg/kg for human consumption, and from 5 mg/kg up to the total daily protein consumption for animal consumption.

60. Composition according to claims 39 or 56, where the composition comprises a daily dosage of oil of about 1 – 300 mg/kg, preferably 10 - 150 mg/kg for human consumption, and from 1 mg/kg up to the total daily fat consumption for animal consumption.

61. Composition according to claims 39 or 56, wherein the composition is an animal feed further comprising common feed components.

62. Composition according to claims 39 or 56, wherein the animal feed is a fish feed.

63. Composition according to claims 39 or 56, where the fish feed is salmon feed.

64. Composition according to claims 39 or 56, where the common feed components comprise fishmeal and/or fish oil.

65. Method for producing an animal based product with improved fatty acid composition, comprising of feeding the animal from which the product is to be produced with an animal feed comprising common feed components and a combination of:

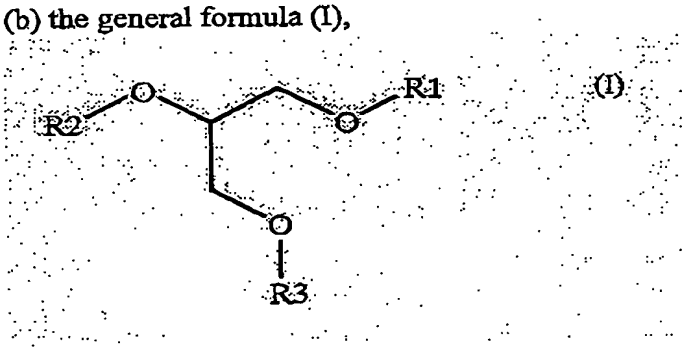
1) a protein material; and

2) one or more compounds comprising non β-oxidizable fatty acid entities represented by

(a) the general formula R''-COO-$(CH_2)_{2n+1}$-X-R', wherein X is a sulphur atom, a selenium atom, an oxygen atom, a CH_2 group, a SO group or a SO_2 group; n is an integer of 0 to 11; and R' is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, wherein the main chain of said R' contains from 13 to 23 carbon

atoms and optionally one or more heterogroups selected from the group comprising an oxygen atom, a sulphur atom, a selenium atom, an oxygen atom, a CH_2 group, a SO group and a SO_2 group; and R'' is a hydrogen atom or an alkyl group containing from 1 to 4 carbon atoms; and/or

(b) the general formula (I),



(I)

wherein R1, R2, and R3 represent

i) a hydrogen atom; or

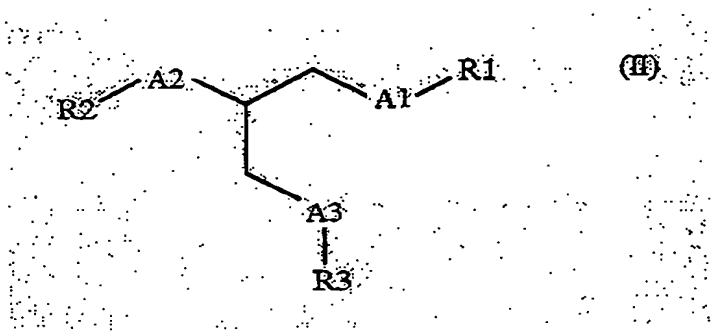
ii) a group having the formula CO-R in which R is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, and the main chain of said R contains from 1 to 25 carbon atoms; or

iii) a group having the formula $CO-(CH_2)_{2n+1}-X-R'$, wherein X is a sulphur atom, a selenium atom, an oxygen atom, a CH_2 group, a SO group or a SO_2 group; n is an integer of 0 to 11; and R' is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, wherein the main chain of said R' contains from 13 to 23 carbon atoms and optionally one or more heterogroups selected from the group comprising an oxygen atom, a sulphur atom, a selenium atom, an oxygen atom, a CH_2 group, a SO group and a SO_2 group;

iv) an entity selected from the group comprising $-PO_3CH_2CHNH_3COOH$ (serine), $PO_3CH_2CH_2NH_3$ (ethanolamine), $PO_3CH_2CH_2N(CH_3)_3$ (choline), $PO_3CH_2CHOHCH_2OH$ (glycerol) and $PO_3(CHOH)_6$ (inositol);

wherein R1, R2, and R3 are chosen independently from i), ii), iii), or iv), but at least one of R1, R2, or R3 is defined by iii); and/or

(c) the general formula (II),



(II)

wherein A1, A2 and A3 are chosen independently and represent an oxygen atom, a sulphur atom or an N-R4 group in which R4 is a hydrogen atom or a linear or branched alkyl group, saturated or unsaturated, optionally substituted, containing from 1 to 5 carbon atoms;

wherein R1, R2, and R3 represent

i) a hydrogen atom or a linear or branched alkyl group, saturated or unsaturated, optionally substituted, containing from 1 to 23 carbon atoms; or

ii) a group having the formula CO-R in which R is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, and the main chain of said R contains from 1 to 25 carbon atoms; or

iii) a group having the formula $CO-(CH_2)_{2n+1}-X-R'$, wherein X is a sulphur atom, a selenium atom, an oxygen atom, a CH_2 group, a SO group or a SO_2 group; n is an integer of 0 to 11; and R' is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, wherein the main chain of said R' contains from 13 to 23 carbon atoms and optionally one or more heterogroups selected from the group comprising an oxygen atom, a sulphur atom, a selenium atom, an oxygen atom, a CH_2 group, a SO group and a SO_2 group;

iv) an entity selected from the group comprising $-PO_3CH_2CHNH_3COOH$ (serine), $PO_3CH_2CH_2NH_3$ (ethanolamine), $PO_3CH_2CH_2N(CH_3)_3$ (choline), $PO_3CH_2CHOHCH_2OH$ (glycerol) and $PO_3(CHOH)_6$ (inositol);

wherein R1, R2, and R3 are chosen independently from i), ii), iii), or iv), but at least one of R1, R2, or R3 is defined by iii); and/or

a salt, prodrug or complex of the compounds according to (a)-(c)

66. Method for producing an animal based product with improved fatty acid composition, comprising of feeding the animal from which the product is to be produced with an animal feed comprising common feed components and a protein material and optionally a non β-oxidizable fatty acid analogue.

67. Method according to claim 65 or 66, wherein the animal feed further comprises fermented soy protein material.

68. Method according to claim 65 or 66 or 67, where the animal based product is a meat product.

69. Method according to claim 65 or 66 or 67, where the animal based product is an oil based product.

70. Method according to claim 65 or 66 or 67, where the animal based product is a skin based product.